Discussion of AB Data Sets

Following the third Anthropogenic Background small workgroup meeting on November 20, 2020, EPA and the Suquamish Tribe discussed next steps on several issues regarding establishing Anthropogenic Background. Issues discussed included what data to include in the final datasets and treatment of data (e.g. substitutions and weighting). The specific issues EPA would like EWG to address in the next meeting include the following:

- PCB Aroclors
- Fines Normalization and Sediment Traps
- Weighting
- Dioxins/Furans
- Summing/Substitutions

PCB Aroclors: Aroclor data points need to be excluded from the PCB data set.

There are few aroclor data points and including the aroclor data has little impact on the mean or UCL values for total PCBs.

This data could be used as supporting data or in the sensitivity analysis.

Outliers: Use the full data set - do not exclude any data points as outliers.

This dataset does not appear to be overly influenced by outliers. There do appear to be some higher values associated with weather events however, these points likely represent the higher end of what might be expected in the system during storms.

Heavier fractions of the sediment trap data are not representative of what will move into the EW and normalizing sediment data may still erroneously give some weight to the heavier fractions. Excluding samples with less than 60% fines may be a way to include sediment trap data, however, that is not a perfect solution either. Given the small number of sediment data points and the small influence of those data on the mean or UCL, it would be preferable to not include the sediment traps.

Sediment trap data could be used as supporting data or in the sensitivity analysis – particularly to show that the large number of instantaneous measures are representative of long-term sampling.

Fines Normalization: Do not normalize data.

Normalizing sediment data may still erroneously give some weight to the heavier fractions which do not appear to contribute to the EWG sediment load.

Weighting Factors for Flow Events: Do not weight data for flow events.

While there do appear to be differences in contaminant concentrations in suspended sediments during different flow events and different amounts of time that different flow events occur –

they do not appear to be adequately understood to develop and apply a sufficiently robust normalization procedure.

Dioxins/Furans: Develop AB values for individual dioxins and furans. Long-term concentrations may be monitored relative to the background value for each dioxin/furan.

Substitution Rules for Summing: There remain concerns for substituting a fixed value for an unknown value (non-detect). If there are a high number of non-detects, it will skew the data to that fixed value. Kaplan-Meier statistics were developed to address that issue. Although there were few differences between the KM AB values and the AB values using either ½ RL or only detected values – it may become more of an issue during long term monitoring as concentrations decrease.

However, based on the discussion in the small workgroup meetings, EPA would agree to using 0 x RL for PCB congeners. Substitutions should not be needed for dioxins/furans since AB values will be determined for individual D/F congeners. However, if substitutions are needed for summing dioxins/furans, the same substitution method should be used (0 x RL).